

What is claimed:

1. A method of controlling the movement of plural trains over a network of tracks using a network wide computer-based movement planner which creates a movement plan for planning the movement of the trains traveling over the network, the network having at least one control area, with a dispatcher being assigned to manage the movement of trains for a control area in accordance with the movement plan, comprising:

(a) predicting the occurrence of events along the network based on the movement plan; and

(b) prompting the respective dispatcher to take specific actions as a function of the predicted events.

2. The method of Claim 1 wherein said prompting includes requesting the dispatcher to provide information relating to the predicted event.

3. The method of Claim 2 further comprising updating the movement plan as a function of the information provided by the dispatcher.

4. The method of Claim 3 wherein said prompting comprises interacting with the dispatcher via an interactive display enabling the dispatcher to request modifications to the movement plan.

5. The method of Claim 4 wherein said prompting comprises enabling the dispatcher to request an analysis of a hypothetical modification to the movement plan via an interactive display.

6. The method of Claim 4 wherein said prompting comprises requesting the dispatcher to select a new way point for a train.

7. The method of Claim 1 wherein said prompting comprises:

(i) generating a task list of activities to be performed by the dispatcher as a function of the predicted occurrence of events; and

(ii) monitoring the completion of the activities specified on the task list by the dispatcher.

8. The method of Claim 1 wherein said prompting is a function of non-compliance of actual events with the predicted events.

9. The method of Claim 2 wherein said requesting includes providing the dispatcher with forms pre-filled with known information.

10. The method of Claim 1 wherein said predicting includes accessing historical performance information to predict future compliance with movement plan.

11. The method of Claim 10 wherein said accessing comprises accessing information relating to configuration of work locations for trains performing specific types of activities.

12. The method of Claim 10 wherein said accessing comprises accessing crew performance statistics.

13. The method of Claim 10 wherein said accessing comprises accessing dispatcher statistics.

14. The method of Claim 10 wherein said accessing comprises accessing yard capacity and work flow in the yard.
15. The method of Claim 1 wherein said predicting includes determining train performance as a function of train characteristics.
16. The method of Claim 15 wherein said determining comprises evaluating information relating to the type of train.
17. The method of Claim 16 wherein said determining comprises evaluating information relating to horsepower capacity and weight of the train.
18. The method of Claim 1 wherein said prompting includes displaying indicia of track location for predicted occurrences as a function of time.
19. The method of Claim 18 wherein said displaying comprises showing a graph of train location.
20. The method of Claim 18 wherein said displaying comprises showing planning arrows for the planned route of a selected train on a graphical trackline display.
21. The method of Claim 18 wherein said displaying comprises showing indicia of track location for predicted occurrences as a function of time at a display location remote from the display location of the dispatcher.
22. The method of Claim 18 wherein said displaying comprises showing information about trains which are approaching the dispatcher's control area.

23. The method of Claim 18 wherein said displaying comprises alerting the dispatcher of trains requiring issuance of a new movement authority.

24. A method of controlling the movement of plural trains over a network of tracks using a network wide computer-based movement planner which creates a movement plan for planning the movement of the trains traveling over the network, the network having at least one control area with a dispatcher being assigned to manage the movement of trains for a control area in accordance with the movement plan, comprising:

- (a) generating a task list of activities to be performed by the respective dispatcher as a function of the movement plan;
- (b) monitoring the execution of the activities specified on the task list by the dispatcher; and
- (c) prompting the dispatcher to provide information relating to the execution of activities identified on the task list.

25. The method of Claim 24 further comprising updating the network-wide movement plan as a function of the execution of the activities by the dispatcher.

26. The method of Claim 24 wherein said generating further comprises:

- (i) monitoring the movement of trains through the control area, and
- (ii) prompting a desired activity of the dispatcher as a function of the movement of the trains.

27. The method of Claim 24 wherein said generating comprises:
- (i) receiving movement reports regarding the trains in the control area, and
  - (ii) prompting a desired activity by the dispatcher on the basis of the non-receipt of a movement report.
28. The method of Claim 24 wherein said prompting includes transmitting forms to the dispatcher that are required to be submitted as a function of the movement of the trains.
29. The method of Claim 28 wherein said prompting includes automatically loading the forms with information related to the activity known at the time the forms are presented to the dispatcher.
30. The method of Claim 29 wherein said loading comprising entering the appropriate track authority information for the train.
31. The method of Claim 29 wherein said transmitting comprises communicating a dynamically configurable form of the appropriate authority type.
32. The method of Claim 24 wherein said prompting comprises notifying the dispatcher to assign a helper locomotive.
33. A method of controlling the movement of plural trains over a network of tracks using a network wide computer-based movement planner which creates a movement plan for planning the movement of the trains traveling over the network, the network having at least one control area with a dispatcher being assigned to

manage the movement of trains for a control area in accordance with the movement plan, comprising:

- (a) monitoring the movement of trains in accordance with the movement plan;
- (b) identifying incidents of non-conformance with the movement plan; and
- (c) alerting the respective dispatcher of an identified incident.

34. The method of Claim 33 wherein said monitoring includes receiving periodic movement reports from the train and wherein said identifying includes determining non-receipt of an expected movement report.

35. The method of Claim 33 wherein said alerting includes the step of prompting the dispatcher to provide information related to the identified incident.

36. The method of Claim 35 wherein said prompting includes automatically providing the dispatcher with a form prefilled with information to report information relating to the identified incident known at the time the form is presented to the dispatcher.

37. The method of Claim 36 wherein said providing comprises communicating a delay report

38. The method of Claim 33 further comprising informing dispatchers of other control areas of the identified incident.

39. The method of claim 33 wherein said alerting includes communicating information relating to an identified incident for at least one train of a linked activity.

40. A computer program product for use with a railway computer assisted train dispatching system for controlling the movement of plural trains over a network of tracks; the dispatching system using a network-wide computer-based movement planner which creates a network-wide movement plan for planning the movement of the trains traveling over the network, the network having at least one control area with a dispatcher assigned to a control area to manage the movement of trains in accordance with the movement plan, said computer program product comprising:

a computer usable medium having computer readable program code modules embodied in said medium for assisting the dispatcher in controlling the movement of trains; said computer readable program code modules comprising:

computer readable first program code module for causing a computer to predict the occurrence of events based on the provided portion of the movement plan; and

computer readable second program code module for causing a computer to prompt the dispatcher to take specific actions as a function of the predicted events.

41. A computer program product for use with a railway computer assisted train dispatching system for controlling the movement of plural trains over a network of tracks; the dispatching system having a computer-based movement planner which creates a network-wide schedule for each of the trains traveling over the network, the network having at least one control area with a dispatcher assigned to a control area to

control the movement of trains in accordance with the movement plan, said computer program product comprising:

a computer usable medium having computer readable program code modules embodied in said medium for assisting the dispatcher in controlling the movement of trains; said computer readable program code modules comprising:

computer readable first program code module for causing a computer to monitor the execution of the activities specified on the task list by the dispatcher.; and

computer readable second program code module for causing a computer to prompt the dispatcher to take specific actions as a function of the predicted events.

42. A method of controlling the movement of plural trains over a network of tracks using a network wide computer-based movement planner which creates a movement plan for planning the movement of the trains traveling over the network, the network having at least one control area, with a dispatcher being assigned to manage the movement of trains for a control area in accordance with the movement plan, comprising:

- (a) predicting the occurrence of events along the network based on the movement plan;
- (b) providing an interactive display of the predicted events; and
- (c) receiving information inputted through the interactive display related to the predicted occurrence of events.



43. The method of Claim 42 wherein said receiving includes communicating a request for the reservation of track resources.
44. The method of Claim 43 wherein said communicating includes requesting an issuance of a movement authority at a time in the future.
45. The method of Claim 42 wherein said receiving includes communicating information from other than a dispatcher.
46. The method of Claim 42 wherein said receiving includes communicating a train bulletin having a bulletin item recognizable to a computer based movement planner.
47. The method of Claim 42 wherein said receiving includes communicating a change of the train operating rules recognizable to a computer based movement planner.
48. The method of Claim 42 further comprising establishing a communications link with a train as a function of the information received from the interactive display.
49. The method of Claim 46 wherein said communicating comprises communicating a configurable bulletin item recognizable to a computer based movement planner.
50. The method of Claim 46 wherein said communicating comprises communicating a planning constraint recognizable to a computer based movement planner.
51. The method of Claim 50 comprising the further step of updating the movement plan using said communicated planning restraint.

52. The method of Claim 42 further comprising establishing a communications link with a train as a function of the location of the train.

53. The method of Claim 1 wherein said predicting comprises determining the appropriate time to issue a train bulletin and the appropriate train route for the train bulletin.

54. The method of Claim 53 wherein said prompting comprises tasking the dispatcher to issue the train bulletin at the appropriate time.

55. The method of Claim 54 wherein said prompting further comprises automatically issuing the train bulletin at the appropriate time.